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Abstract

Distinguished trade theorists maintain that a national economy cannot be uncompetitive as a whole, contrary to the frequent statements of many politicians, because a country must possess a comparative advantage in some sector according to Ricardo's principle. In this paper the author argues that such a criticism addressed to the notion of national competitiveness neglects a bottom line of a national economy engaged in a global market. In this context, characterized by free capital movements and possible unemployment, *absolute* productivity and *absolute* advantage may prevail over *relative* productivity and *comparative* advantage and can affect the competitiveness of all productive sectors of a single country. Such a reappraisal of international equilibrium offers a theoretical foundation to the intuitive idea that national competitiveness can be a source of possible economic conflict among the national members of a global economy.

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1. Introduction ¹

Some trade theorists have argued that the notion of competitiveness cannot be extended from a characterization of the firm to that of a whole national economy. In particular Paul Krugman (1994) has criticized “*the rhetoric of competitiveness – the view that, in the words of President Clinton, each nation is ‘like a big corporation competing in the global marketplace’*” (p.29). “*...when we say that a corporation is uncompetitive, we mean that its market position is unsustainable – that unless it improves its performance, it will cease to exist. Countries, on the other hand, do not go out of business. They may be happy or unhappy with their economic performance, but they have no well-defined bottom line. As a result, the concept of national competitiveness is elusive*”. (p.31). Before Krugman, also Clarida and Findlay (1991) asserted that the concept of national competitiveness makes no sense in the traditional theory of international trade; although they believe that it becomes meaningful in their models of trade with endogenous government. We read “*‘Competitiveness is a concept that has no meaning within the context of traditional trade models, at least with regard to the*

¹ The author would like to thank Adriano Birolo, Giancarlo Gandolfo and Arrigo Opocher for useful comments, under the usual exemption from responsibility.

economy as a whole. While certain sectors of an economy may not be able to compete with imports, some other sector of the economy must be able to export competitively: a country must always possess a comparative advantage in something” (Clarida and Findlay, pp. 30-31). As early as 1873 Marshall had clearly rejected a similar concept of competition which he attributes to the inaccurate language used by many “public men” but not by serious economists.²

Economists and politicians, who felt to be under Krugman’s criticism, reacted to show that they have not used such elusive notion of competitiveness, but they seemed to be acquiescent about the criticism of the notion itself.³ The disputed issue should be isolated from certain personal connotations and reconsidered from two points of view: methodological and theoretical. If one accepts the prescriptions of methodological individualism and “competitiveness” is interpreted as the capability of competitive behaviour, we should easily agree on the criticism, because the concept can be charged with holism or organicism on the same footing as the Marxist theory of capitalism. In fact this meaning of “competitiveness” would attribute to an economic whole (a national economy) a characteristic which, according to that methodological ism, applies only to individual agents or firms.⁴ We shall not dwell

² Arrigo Opocher has recalled my attention on the following passage taken from Alfred Marshall’s Memorials “...it might be argued that short hours of work might ruin the foreign trade of the country. Such a doctrine might derive support from the language of some of our public men, even in recent times. But it is a fallacy. It contradicts a proposition which no one who had thought on the subject would dream of deliberately denying; one which is as well established and as rigorously proved as any in Euclid. This proposition is, that low wages, if common to all occupations, cannot enable one country to undersell another. A high rate of wages, or short hours of work, if common to all industries, cannot cause a country to be undersold: though, if they were confined to some industries, they might of course cause these particular industries to be undersold”. (Memorials of Alfred Marshall, “The Future of the Working Class”, 1873, p. 112, italics added).

³ See the replies by Stephen Cohen, Clyde Prestovitz Jr, Rudolf Scharping, Benn Steil, Lester C. Thurow; and the rejoinder by Paul Krugman (1994)

⁴ As a matter of fact, holism or organicism frequently intrudes itself into the language used by economists and politicians. Ricardo’s example of trade between England and Portugal seems to be not immune from holism.

here on such methodological question. Instead we shall argue that the criticism neglects a bottom line of a national economy which is engaged in the “global marketplace” mentioned by Krugman. In such a global context, national competitiveness can be a useful and non ambiguous concept without methodological infringements. Furthermore our argument, which stresses the role of absolute productivities and absolute advantages, instead of relative productivities and comparative advantages, will offer a theoretical foundation to the intuitive idea that national competitiveness can be a source of possible economic conflict among the national economies of a global economy.

2. **Meaningless national competitiveness**

Initially let us consider a feature which is common to the old and new theories of international trade and which supports the criticism addressed to the notion of national competitiveness.

The progress achieved by the theory of international trade, in comparison with the old theories from Ricardo up to Heckscher and Ohlin, is substantial and debatable at the same time⁵. It has brought about generalizations of the classical and neo-classical theorems of trade by expanding the dimensions of the commodity space of the trade models⁶. Furthermore the new trade theories have investigated new “causes” of international specialization associated with imperfect competition and oligopoly, endogenous comparative advantages, increasing returns to scale, strategic trade choices and the determining role of historical accidents. However, the dimensional generalizations have also led to a weaker meaning of some basic

Many contemporary politicians and economic advisors should be also charged with holism. In my country we are repeatedly warned about the problems of the “sistema Italia” or “sistema-paese” as if it would possess anthropomorphic features.

⁵ See Gandolfo (1998) for a comprehensive overview of the old and new theories of international trade . See also Krugman (1995).

⁶ See Dornbush, Fischer and Samuelson (1977), Ethier (1984).

theorems. In fact the propositions, which in the old theories establish causal relations going from certain fundamentals (typically the techniques and factor endowments) to the pattern of international trade, have to be superseded by correlations⁷ among aggregate net-imports, pre and post-trade prices and proportions among total endowments. Furthermore, some models of international trade have reconsidered the role of capital and distributive variables in the theory of international trade and led to question the generality of the factor endowment models. Such models, formulated by Parrinello (1970, 1973), Metcalfe and Steedman (1973), Mainwaring (1974), Steedman (1979a, 1979b) and others, have been called Neo-Ricardian or time-phased models.⁸

Despite the theoretical differences, all developments in the positive theory of international trade mentioned above share a common feature with the old theory of trade: they leave no room to the notion of “national competitiveness”. In those theories the non existence of trade, if trade is free, may accrue only by fluke or as a result of strategic trade policies or in cases which are excluded by suitable assumptions⁹. The typical fluke occurs when the autarky relative prices of the same commodities are equal across the trading countries. As a consequence, in the absence of transportation costs and of other obstacles to trade, it becomes as much advantageous for a country to retreat to a self-sufficiency state or to trade.

⁷ See Deardorf (1980), Dixit and Norman (1980). Metcalfe and Steedman (1981) have stressed this change of interpretation of theorems on the basis of the theory of capital. Bhagwati, Panagariya and Srinivasan have pointed out that even Ricardo’s theorem, if his trade model is closed by demand and supply equilibrium and without additional assumptions which rule out multiple equilibria, should be reformulated by the weaker statement: “If the opening to trade leads to positive quantities of trade, each country exports that commodity in which it has a comparative labour-productivity advantage” (1998, p.33, italics added in the text)

⁸ In the rest of this work we prefer the expression “time-phased” instead of “Neo-Ricardian”, because our argument, focused on absolute instead of comparative advantage, implies a substantial departure from the Ricardian principle of international trade and would make inappropriate the alternative denomination.

⁹ Bhagwati, Panagariya and Srinivasan (1998) acknowledge that, if excess demand functions are used to close the Ricardian model and give rise to multiple equilibria, the opening of trade may not lead to positive quantities of trade and then they suggest additional restrictions that exclude this possibility.

In all cases mentioned above some partial or complete specialization of all countries is the general outcome, whereas an international equilibrium with a no trading country may happen, but it does not derive from the fact that no sector of that country can compete with the corresponding sector of its trading partners. It is not a coincidence that such features pertain to models of international trade in which consumer and capital goods are freely tradable, but the international movements of capital, including financial capital and direct investment, are ruled out or restricted to some extent.¹⁰

3. Meaningful national competitiveness

Now let us consider a system of national economies which form a global economy, where commodities are tradable and all kinds of capital are freely mobile. Our argument will be grounded on a time-phased model of international trade with free capital movements, under the assumption that only one currency, say Euro, is used in the global economy. We shall not formalize such a model, because its basic structure and properties of comparative dynamics, in the absence of capital movements, are common to all time-phased models quoted above¹¹ and the introduction of capital movements, subject to a single currency, reduces the formal model to a one country model characterized by two different labour forces which receive different wage rates. The latter assumption may reflect i) the existence of non competing groups of workers associated with labour immobility or ii) different institutions affecting the national wage rates or iii) simply different national environments which determine non uniform efficiencies and rewards of labour employed in different countries; the circumstances ii) and iii) being consistent with international mobility of labour.

¹⁰ Metcalfe and Steedman (1979a) present a time-phased model in which financial capital is assumed to be mobile across countries, whereas foreign direct investment is excluded.

¹¹ See the appendix of chapter 8 and chapters 9 and 14 in the book edited by Steedman (1979a)

In particular, let us suppose that a global economy is made of two countries which produce two commodities by given techniques, subjected to constant returns to scale, and using labour and the same commodities as circulation capital. Each country is characterized by a viable self-sufficiency technology, a given real wage rate and a sufficient supply of labour, not necessarily fully employed. Free competition rules over all markets. Assuming that capital is internationally mobile, a long period equilibrium is associated with a uniform rate of interest (the rate of profit in the classical terminology) within and across countries. Under such state of globalization, the pattern of international trade will not be predicted by the traditional theory of comparative advantages, because differences in absolute productivities and absolute advantages may affect the international equilibrium and may even lead to the absence of trade. This result can be explained as follows.

The choice of the trade pattern is governed by the principle of the cost minimizing choice of techniques under free competition and this principle implies that, given the two wage rates, the chosen techniques will be associated with the highest rate of interest. In such a global economy, which is still not fully integrated in the sense explained in section 7, the fundamental pre-condition for specialization and trade - the terms of trade falling within the range defined by the self-sufficiency price ratios - is replaced by another condition: the rate of interest with international specialization must be higher than the self-sufficiency rate of interest of each country. In section 5 we shall explain that comparative advantage can be reformulated as a post-condition, that is a property of international equilibrium, instead of a condition that predicts the pattern of trade. A further departure from the Ricardian model - although less general than the former, as it rests on the non substitution theorem - derives from the fact that, given the wage rates and the techniques with constant returns, the terms of trade and the rate of interest in the model of global economy are fully determined without resorting to assumptions concerning the demand side.

Paraphrasing Ricardo, let us call the two countries England and Portugal. It may happen that, despite the self-sufficiency relative price of the two commodities is different

across the two countries and both self-sufficiency rates of interest are positive, no industry, say in Portugal, can compete with the corresponding industry in England. In fact a too high wage rate or a too low absolute productivity, described by a too high level of technical coefficients, can make both Portuguese industries unprofitable relatively to the given national wage rates and to the uniform interest rate of the global economy. The self-sufficiency rate of interest in England may be higher not only than the self-sufficiency rate of interest in Portugal, but also higher than the rate of interest which is associated with any system of international specialization in the global economy. In the absence of restrictions on capital movements and since the supply of labour is assumed to set no effective constraint on the production of the two countries, all capital under globalization flows to England, without creating a pressure on the wage rate of this country. Therefore no equilibrating force can be at work and lead to a uniform rate of interest with both countries engaged in production and trade. Despite the lack of capital, Portugal would not necessarily become a deserted country. In fact consumption could take place in the country itself and consumers can include national workers which, although unemployed, are also capitalists and receive the interests from their foreign investment. Furthermore some production processes can survive in Portugal if its technology includes a subset of techniques which require only labour as input and wages are paid at the end of each production cycle and are settled above the subsistence level. Yet, under such circumstances, Portugal would become an “empty” capitalist productive entity if it joins the global economy and it would make sense to say that it goes out of business as a capitalistic economy.

Hence a meaningful bottom line for the national economy exists in a global economy. We can say that a whole capitalistic economy is not competitive, if all its capital using techniques are unprofitable at the international equilibrium prices. This result overrules the claim that “a country must always possess a comparative advantage in something”.

4. National competitiveness and income distribution

In the analysis illustrated above we compared the equilibria of two countries – autarky versus globalization equilibria - assuming that the techniques and the national wage rates remain the same between the two states. In this respect, national competitiveness depends not only on technical differences, but also on differences in the distribution of income associated with the given wage rates. Such dependence can be illustrated by a three-dimensional wage-interest frontier, which links the three distributive variables of the model: the real wage rate in England w_E ; the real wage rate in Portugal w_P ; and the uniform rate of interest in the global economy R_g . In the following we shall use the word wage frontier as an abbreviation of wage rate-interest rate frontier. It is convenient to reduce the dimensions of the wage frontier by assuming that w_E is fixed and then plotting the curve which relates w_P and R_g for a given w_E . Assuming that many techniques are available in each sector of the two countries, but still in the absence of joint production and natural resources, a possible wage frontier may look like the curve R_p -A-B-C in Figure 1.¹² This curve is the outer envelope of the wage frontiers associated with all possible systems of productions with or without international specialization, which can be formed in the global economy. Let r_e denotes the self-sufficiency rate of interest in England, corresponding to the given w_E . Let R_p be the maximum self-sufficiency rate of interest in Portugal and suppose that, if the wage rate in Portugal is equal zero, England is not competitive and therefore R_p is also the maximum rate of interest in the global economy corresponding to the given w_E and to $w_P = 0$.

¹² We assume for simplicity that each technique use at least one capital good and labour, so that we exclude the existence of pure direct labour processes.

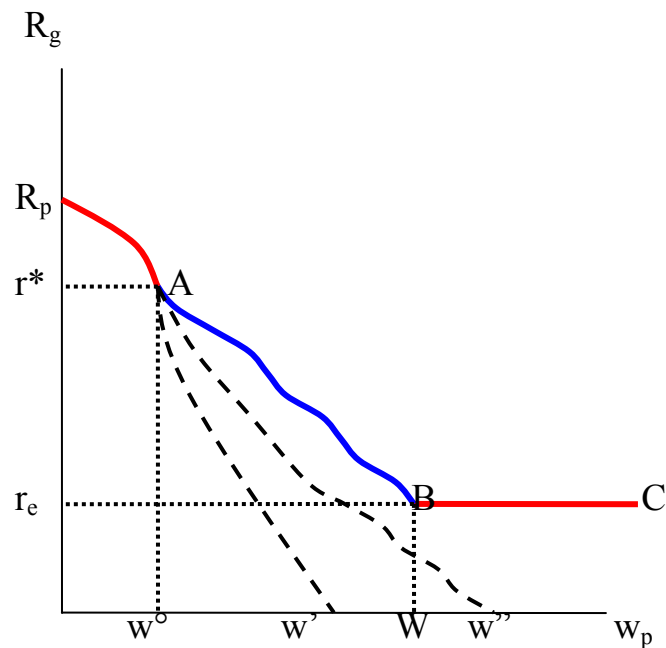


Figure 1

The upper stretch R_p -A of the curve is a no trade zone because a low wage ($0 \leq w_p < w^o$) in Portugal makes England not competitive in all sectors. The horizontal line B-C is also a no trade zone because a wage $w_p > W$ makes Portugal not competitive in all sectors. Instead the stretch A-B, corresponding to $w^o < w_p < W$, is the trade zone of the wage frontier, where both countries can be competitive and trade is possible.¹³

The upper stretch of the frontier prolonged by the two dotted curves describe two alternative self-sufficiency wage frontiers of Portugal, characterized by the same maximum

¹³ In a general model we cannot exclude a re-switching of non competitiveness as the wage rate in Portugal changes in the interval $w^o < w_p < W$.

rate of interest R_p but by different maximum wage rates w' , w'' . The lower dotted curve shows that Portugal can compete in the global economy at the given w_E , if its wage rate is fixed at any positive level even beyond its maximum self-sufficiency value w' up to W . Instead, if the upper dotted curve holds, a global market prevents Portugal from having a wage rate that falls in the interval W, w'' , which instead would be admissible under autarky.

It should be observed that the three zones frontier is not a necessary characterization of the global economy, because the upper no-trade zone may not exist and the stretch A-B may reach the vertical axis. This would be the case if England possesses a so efficient technology to preserve its competitiveness for any non negative wage rate in Portugal.

5. Absolute and comparative advantage of a small country.

The case of a small country which joins a global economy can be used as a simple device to explain a distinction between the theory of trade without capital movements and the theory of trade in a global economy.

Assuming that the technology of the two countries is given and does not change between autarky and globalization, a not small and competitive country may join the global economy, still keeping its self-sufficiency wage rate and affecting the determination of the general interest rate. Instead, a small country, which in autarky is supposed to have a fixed wage rate and an endogenous rate of interest, undergoes an inversion of the logical characterization of the two distributive variables: the rate of interest becomes exogenous, whereas the wage rate becomes an endogenous variable. Such inversion depends on the fact that a small country must face not only the prices but also the rate of interest determined in the “large” global economy. In a long period equilibrium the country can join the global economy and remain competitive, if its technology is efficient enough and its self-sufficiency real wage rate is not too high. Its wage rate becomes an endogenous variable subject to the minimum level set by its self-sufficiency wage rate. This is not an ad hoc assumption, but the result of competition among capitalists who find profitable to invest in the small country and

would obtain extra profits if they pay its labour at the self-sufficiency wage. They will compete for the “small” amount of labour available there and the wage rate in the small economy will increase up to the level at which the extra-profits are swept away and the rate of interest on the capital invested in its industries becomes equal to the general rate of interest determined by the large global economy.

We can now clarify if the classical theory of comparative advantage, which is valid in the absence of capital movements, is superseded or not by a theory of absolute advantages for the determination of the pattern of trade of the small economy joining a global economy. It should be clear that the theory of comparative advantage cannot preserve its original formulation, because we cannot predict the pattern of specialization of the small country on the basis of the self-sufficiency relative price of the two commodities and the given terms of trade. We need to know also the rate of interest, which is now fixed on the global economy, because the comparative advantage of the small country must be defined relatively to its techniques, the prices and the rate of interest of the global economy. In this case, the cost-minimizing specialization of the small country will maximize its wage rate instead of the rate of interest, contrary to the rule which would apply in the absence of capital movements. As a consequence, the pattern of trade under globalization might not conform to the pattern which would be predicted by the self-sufficiency relative price associated with the given autarky wage rate. Most importantly, absolute advantage or disadvantage will now play a crucial role, because a too low productivity in the industries of the small country would make its economy non competitive, even if its wage rate falls to the minimum level. In this case a no trade equilibrium would occur and we would be back to an empty capitalist economy.

We omit to extend the argument to a global economy formed by two not small countries. We only notice that in this more general case the interest rate is determined by the techniques and wage rates of both countries. Once more the comparative advantages become endogenous and cannot be used to predict the pattern of trade. The Ricardian theorem of

comparative advantage has to be transformed from the original explanatory proposition to a correlation among variables which are co-determined by other exogenous variables.

6. Possible and impossible closures of the model

This argument suggests that a certain hierarchy exists in the choice of the exogenous distributive variables in a model of a global economy, where “small” and “large” countries co-exist. The “leading countries” have their own wage rates satisfying their institutional characteristics; the choice of their system of production determines the world prices and the general rate of interest; the small countries choose their specialization system at such given international values. A competitive small country must possess at least one industry that, at the world prices and interest rate, can pay a wage rate which is not lower than its admissible wage. The profitability of such industry sets the bottom-line to the national competitiveness of the small country.

We observe that we have not taken into account alternative closures of the model, which have been investigated in other time-phased models of international trade. In fact the rate of interest in the global economy has been treated as an endogenous variable; whereas the wage rates are fixed exogenously (the minimum wage in the small country). Two reasons justify our procedure. Firstly, the assumption of given wage rates is meaningful and reflects the tradition of the classics, Ricardo in particular. Secondly, assuming that the rate of interest is fixed at the global level, instead of the two wage rates, would make the analysis unnecessarily more complicated if our aim is to describe a meaningful concept of national competitiveness. In fact, assuming that R_{global} is given, instead of w_P , w_E , would introduce one degree of freedom in the production model; which should have to be eliminated by some further assumption. In particular, if we do not fix the ratio between the wage rates as an ad hoc way to close the model, we should have to specify the propensities to saving and consumption, at the cost of increasing the degree of interdependence among the variables of the model.

7. The boundary of the national economy

In our description of a global economy labour was assumed to be in sufficient supply in each country at its given real wage rate, but not necessarily fully employed.¹⁴ Furthermore the model does not identify a given national capital, because capital is internationally mobile and its distribution among countries is endogenous. Therefore given immobile endowments of labour and capital are not reckoned as national determinants of international equilibrium.¹⁵ Of course, in a more general model the existence of given endowments of natural resources would not be dismissed, but this cannot be the reason for a specific theory of trade among nations as distinct from trade within a nation. In the end, what elements define the relevant boundaries among “national” economies under our concept of globalization?

The answer can be found in the concept of magistracy used by Adam Smith¹⁶ as a synthetic expression for the different functions performed by the government. We can say that the boundaries are determined by the scope of different national institutions, which include public organizations, jurisdiction and informal social norms. Despite capital is freely mobile, the investors of capital in a national economy can choose only among the “national” techniques and pay the “national” wage rate which complies with the institutions of that country. In particular, the available techniques, described by marketable inputs and outputs, can be assumed to be different across countries even if the technical know how is evenly diffused. In principle any international differences in the institutional setting can affect the

¹⁴ In particular, the supply of labour in each trading economy can be assumed to be elastic at the going wage, as in the classical theory of wages and population.

¹⁵ However, the equilibrium of a small open country with a wage rate higher than the minimum self-sufficiency wage rate, implicitly presupposes an amount of labour in short supply.

¹⁶ This notion was resumed by Kindelberger (1978) with reference to the theory of international trade and reconsidered in Parrinello (2002).

national competitiveness through the impact on the national sets of possible techniques and on the wage rates. For example, let us suppose that, beside the existence of uniform property rights, a different speed limit on motorways is imposed by law in each country. The theory can treat it as a public good or bad. In fact a given speed limit can make available in a country a technique which would not be so otherwise, because of negative externalities (e.g. a greater number of accidents on the motorways); alternatively a too low speed limit may make unfeasible a certain transportation process. If the techniques are described by vectors of only priced inputs and output, the given admissible set of techniques in each country is assumed to include only those techniques which satisfy the given norm.

In discussing the boundary of a national economy, it is useful to distinguish the models of global economy, like that adopted in the previous sections, in which a norm can be assumed as a given implicit constraint which determines the set of feasible techniques, from the models of political economy of globalization, in which the norm is supposed to be endogenous and determined as an equilibrium value¹⁷. Let S_j denote the “quantity of the norm” in country j , e.g. measured in miles per hour in our example (or by a zero-one variable if the norm can either exist or not exist). If S_j is endogenous, we should have to describe the set of available techniques also by the explicit variable S_j .¹⁸ In such a context the concept of national competitiveness should be reconsidered, allowing for the possibility of strategic interactions among different governments.

¹⁷ see Clarida and Findlay (1991).

¹⁸ This applies in particular to the representation of the technology by means of production functions. In this case S_j should be included as a variable together with the productive inputs.

8. Approaching the bottom-line and degrees of competitiveness

Although in the real life even large companies, like Coca-Cola mentioned by Krugman, occasionally go out of business, it might be objected to our notion of national competitiveness that a national country hardly reaches its bottom line of competitiveness. Our picture of a Portuguese capitalist economy which disappears looks indeed exaggerated and we may wonder if something wrong is on the side of the assumptions of the model and makes the concept of national uncompetitiveness a useless limit case.

We can justify the concept at issue from different perspectives. Firstly, some countries, in particular developing countries, are indeed near the bottom-line and their capital using economies do not become empty only because of international aids and loans, which are conceded on the condition that they will serve to finance the local investments. Secondly, the fact that some countries survive may depend on the fact that their government departs from the rules of the global economy and impose restrictions to capital movements. Thirdly and more importantly, the notion can be useful to assert that a country is loosing international competitiveness, in the sense that it is gradually tending to its bottom line. Indeed many governments perceive a bottom line for their countries and intervene much before the line is reached. Such perception derives from the observation that some sectors succumb to the international competition and they are not replaced by other emerging sectors. Of course, a final empty economy is a limit case and only the intermediate stages will be observed.

By definition competitiveness is a black or white property, like the notion of technical efficiency. However, although it does not possess a cardinal measure, different indexes of competitiveness might be chosen for different purposes. For instance, suppose that a global economy is made of two countries at a certain stage of globalization, at their given wage rates and with amounts of labour converted in homogeneous units. Then a measure of the distance from the bottom line of national competitiveness can be the increase of the national wage rate

that, *ceteris paribus*, would lead a country to its ultimate border line¹⁹ of competitiveness. If such wage increase is higher in one country than in the other, the former is in a certain sense more competitive than the latter. Since this meaning is rather elusive, the criticism raised by Krugman could be reformulated in a weaker sense, by saying that the concept of degree of national competitiveness is elusive; however this *elusiveness* is encountered also if we want to define the degree of competitiveness of a corporation. Instead both a national economy and a corporation can become non competitive: the latter as an observed fact, the former as a tendency, but the concept sets a precise border line in both cases.

9. Conflicts from national competitiveness compared with conflicts investigated in the recent literature

Our argument mitigates Ricardo's optimism about the mutual gains from trade if we move from his example of international economy to a global economy. Such optimism has been already eroded by those trade theorists who proved that a technical innovation in one country may harm a trading partner country as a whole and not only some group of income earners and this can be a long period effect. Hicks (1953)'s inaugural lecture opened the path in this direction. Steedman and Metcalfe (1973) have also proved that the mutual gains of Ricardo's theory of foreign trade may be replaced by non mutual advantages, if production requires capital. Furthermore in the recent literature on globalization, specific sources of conflict among national economies have been investigated by Dornbush, Fischer and Samuelson (1977), Johnson and Stafford (1993), Gomory and Baumol (1998, 2000), and Samuelson (2004). In particular Gomory and Baumol consider the existence of increasing returns to scale, high set up costs and productivity growth through learning in the case of many

¹⁹ Although a reswhiching of non competitiveness is possible as the wage rate changes, there will exist a sufficiently high wage rate, such that from that level onwards the economy becomes and remains uncompetitive. For this reason we use in the text the expression "ultimate" border line of competitiveness.

industries and they derive potential conflicts among countries from certain regularities in the set of multiple international equilibria. Instead Samuelson (2004) points out by means of a simple example that a home country, say the US, can be hurt by an exogenous technical progress which takes place in a trading partner, say China, where an innovation reduces the cost of production of the good in which the home country had a comparative advantage. All such contributions enlighten specific sources of conflict among trading countries without assuming the existence of capital and therefore without resorting to the notion of national competitiveness illustrated above.

Instead our characterization of a global economy reveals the existence of a distinct source of conflict which is related to the notion of national competitiveness. Two kinds of shocks can occur in one country and affect both trading economies in our model: a change in the real wage and a technological-institutional innovation which causes a change in the set of available techniques. The shock will affect the wage earners in the two countries and the class of transnational capitalists in a way which can be only partially determined by a steady state model. In fact, assuming that the wage rate in one country is fixed as a given vector of quantities of goods per unit of labour, the effect of the foreign shock on its employment would be undetermined in a steady growth model – in which the scale of the economy is unexplained. Only the effect on the proportions between the wage bills and between the total employments in the trading countries can be determined, if we specify the assumptions about the propensity to save and invest and the consumption structure. Furthermore the theory can determine the effect on the distribution of the total non wage income among interest shares on capital invested in the two countries, but nothing can be said about the effects on the income distribution among “national” capitalists. Despite this indeterminacy, the determination of on the uniform rate of interest of the global economy and the relative national competitiveness can locate a definite conflict between the two countries. In the next section we shall analyze by means of the wage frontier a possible harmful effect for one country caused by an innovation in its trading partner and emerging as a long period feature.

10. Technical progress and the wage frontier of the global economy

Let assume that an innovation adds a new efficient technique, described by a vector of technical coefficients, to those available in one country, whereas the set of possible techniques of the other country remains the same. This change will lead to an upward shift of the self-sufficiency wage frontier of the innovative country and may also lead to an upward shift of the wage frontier of the global economy.

Resuming the case illustrated in figure 1 of section 4, suppose first that the innovation takes place in Portugal and, as a consequence, the wage frontier of the global economy, defined for a given wage rate in England, w_e , shifts from R_p, A, B, C to R'_p, A', B', C as described in figure 2. The minimum rate of interest in Portugal, r_e , does not change because it is determined by the unchanged techniques available in England and the given w_e . In this case Portugal can maintain its initial wage rate at level less than W and it may even increase it up to W^* , still preserving its national competitiveness.

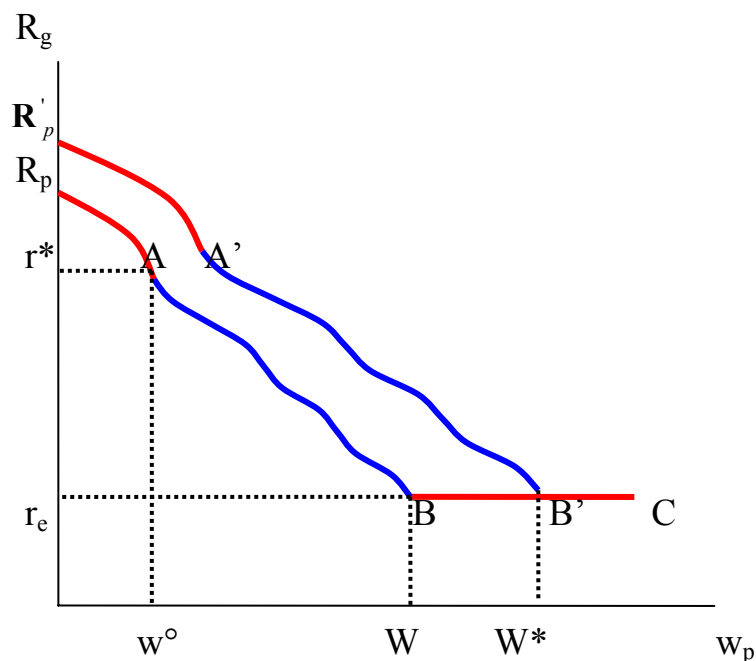


Figure 2

Suppose now that the innovation occurs to England instead of Portugal. In this case two different effects may accrue to Portugal, depending on the amount of the increase of the self-sufficiency rate of interest in England for the given wage rate w_e . They are represented in figure 3. If the innovation causes a shift of the wage frontier from R_p, A, B, C to A', B', C' ²⁰ and the self-sufficiency interest rate in England increases from r_e to $r_{e'}$, Portugal can benefit from an increase of the corresponding maximum wage rate from W to W^* .

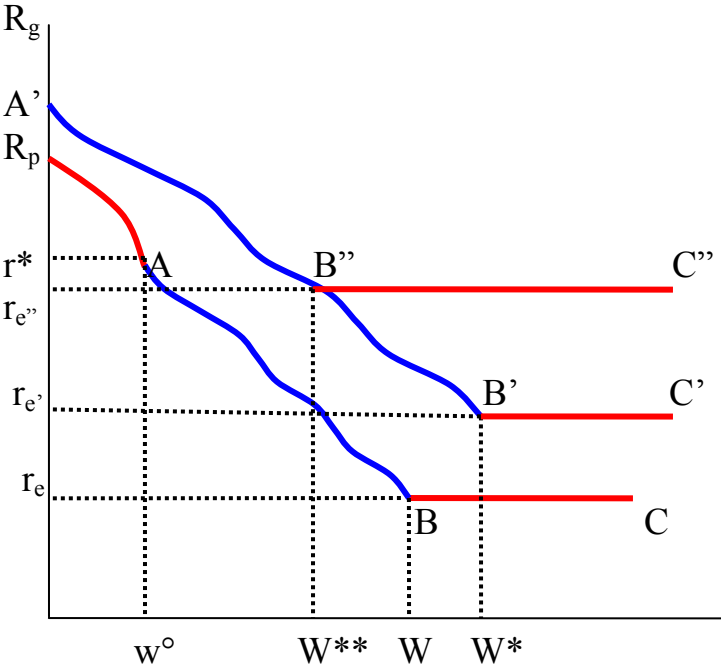


Figure 3

Instead, if the innovation causes a shift of the wage frontier from R_p, A, B, C to A', B'', C'' and the minimum interest rate increases from r_e to $r_{e'}$, the maximum wage rate in Portugal

²⁰ We are assuming that the innovation makes the English economy so efficient, relatively to Portugal, that England will never become uncompetitive whatever a low w_p is set and therefore the upper no trade zone like R_p, A disappears after the innovation.

decreases from W to W^{**} . If the wage w_p is supposed to fall in the interval W^{**}, W before the innovation, such event would make the Portuguese economy uncompetitive and Portugal should leave the global economy or succumb as a capitalist economy, unless its initial wage is allowed to fall below W^{**} .

Therefore technical progress can affect the competitiveness of both trading countries up to the point in which, assuming they were both competitive before the shock, the non innovative country becomes uncompetitive. It is also possible that this country, which initially has benefited from joining the global economy, will find itself even worse than in a self-sufficiency state if its wage rate has to fall to preserve its competitiveness in the global market.

11. Conclusion

We have stressed the point that a change in absolute productivities and absolute advantages can prevail over the change in relative productivities and comparative advantages in the explanation of the rise and decline of nations engaged in a global market. We may wonder why distinguished trade economists have ignored that “national competitiveness”, related to those absolute magnitudes, is not an elusive, but a meaningful notion in that global context.

I suggest a first reason. A neo-classical trade theorist may assume that an international equilibrium is associated with full employment, flexible wages and a technology characterized by substitutability between capital and labour, such that a least one industry in each country is profitable at any equilibrium prices. Our argument explains that this conclusion is not preserved under different, but not more restrictive assumptions.

A second reason can be the traditional separation of international economics into fields of analysis which are not sufficiently integrated: the pure theory of international trade, which is concerned with the existence and pattern of commodity trade; the theory of the balance of payments, which deals with exchange rates, capital movements and interest rates; and the

theory of direct investment often formulated as case studies of multinational corporations. In the second field, the interest rate appears as a monetary-financial phenomenon and the link with the real economy is only indirect and, if the analysis is confined to the short period, such a link can be rather loose. In the theory of international trade adopted in our argument, the rate of interest is directly determined by technical conditions and by the given wage rates and the bottom line of national competitiveness emerges in a simple way. The interest rate (the classical rate of profit), associated with a zero rate of extra-profit, under free competition and in the long period equilibrium, is the link between the financial sector and the real sector of a global economy and then a national economy can be competitive or not in a precise sense.

Although some trade economists may dismiss the notion of national competitiveness, many politicians, dealing with globalization issues, do not hesitate to assert in an intuitive way that a certain national economy is or tends to become non competitive. They are right also at a theoretical level, if such level is properly formulated. However, we should be cautious in policy advice-giving in favour or against globalization on the basis of the present argument. The analysis discussed so far is limited to the field of comparative static and comparative dynamics. Nothing has been said about the gains and losses over the transition paths from autarky or from free trade in commodities up to the global economy with free capital movements. A national government should compare the whole comparative paths of the economy, beside the possible reactions of other national governments, before implementing or rejecting a globalization policy.

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